A New Species of Tapirira (Anacardiaceae) from Ecuador

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ABSTRACT. Tapirira rubrinervis Barfod, sp. nov., is described from the coastal plain of Ecuador. It is easily distinguished from its congeners by the fewfoliolate leaves, the obovate, unequally sized leaflets, and the striking red venation of the lower surfaces of the leaflets. The variation in leaf morphology and phenology is discussed.

RESUMEN. Se describe una especie nueva, *Tapirira rubrinervis* Barfod, de la región costera de Ecuador. Se distingue fácilmente de sus congéneres por tener las hojas con pocos folíolos, los folíolos desiguales y obovados, con llamativa nervadura roja del envés. Asimismo, se comenta la variación en la morfología de las hojas y su fenología.

A recent revision of Ecuadorian Anacardiaceae

ceous leaflets that are inconspicuously hairy beneath or glabrous. The flowers are typical for the genus.

KEY TO ECUADOREAN SPECIES OF TAPIRIRA

- Leaves (1-)3-5 foliolate, obovate, rounded apically, glabrous, venation bright red beneath . . .
- Leaves 5–15 foliolate, ovate to elliptic, rarely oblong, acuminate, with hairs beneath, venation brown or green.
 - 2a. Leaflets with adpressed hairs beneath or glabrous.
 - 3a. Leaflets chartaceous, adpressed-pubescent beneath; sepals less than 0.4 mm long, petals 1.5–2 mm, venation usually inconspicuous; disc ca. 1 mm diam . .
 - 3b. Leaflets subcoriaceous, sparsely adpres-

for the Catalogue of the Vascular Plants of Ecuador (Jørgensen & León-Yánez, 1999) revealed a new species of Tapirira. Barfod (1987) described only two species of Tapirira in Flora of Ecuador: Tapirira guianensis Aublet, with two subspecies (Barfod, 1986), and T. peckoltiana Engler, which should be correctly named T. obtusa (Bentham) J. D. Mitchell (Mitchell, 1993). Since this flora treatment was published, T. guianensis has been recorded several times west of the Andes in the provinces of Esmeraldas and Carchi, Ecuador. It has been found on the northern coastal plain along the upper tributaries of the Cayapas and Mira rivers. In the Cayapas river system, it is locally known as "sajo de arriba," or "sajo chi." "Sajo" is the name for Campnosperma panamense Standley, a rare simple-leaved

Tapirira rubrinervis Barfod, sp. nov. TYPE: Ecuador. Carchi: border area with Prov. of Esmeraldas, km 20 on Lita-Alto Tambo road, 550 m, 25 June 1991 (fl), *H. van der Werff, B. Gray & G. Tipaz 11971* (holotype, AAU; isotypes, MO, QCA). Figure 1.

species of Anacardiaceae growing near Borbón (Little & Dixon, 1969).

In 1993, I received for the first time material of an undescribed species of *Tapirira* growing along the Mira River and its tributaries in the province of Carchi, where it is locally known as "cuilde." The congener *T. guianensis* also occurs in that area. It is called "cuilde blanco." There was little doubt that the new material represented a separate species, and it is described here based on nine collections. Although it has several very distinctive features, it is probably most closely related to *Tapirira guianensis*. Like this species it has charta-

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A congeneris ceteris differt foliis paucifoliolatis, foliolis statura inaequale, obovatis, glabris. Nervatio foliorum infra conspicue rubra.

Evergreen trees to 30 m tall and 65 cm DBH. Bark unknown. Branchlets with deciduous ferrugineous feltlike pubescence, lenticels irregularly distributed, abundant on young portions, unevenly sized, rounded; leaf-bearing twigs hollow in dried condition with minute longitudinal ridges. Leaves imparipinnate, (1–)3–5 foliolate, the number of leaflets per leaf apparently decreasing toward the tip of the branches, the distal leaves being trifoliolate or simple (unifoliolate) (*Tipaz et al. 1031*); petiole

Volume 9, Number 4 1999

Barfod Tapirira rubrinervis from Ecuador

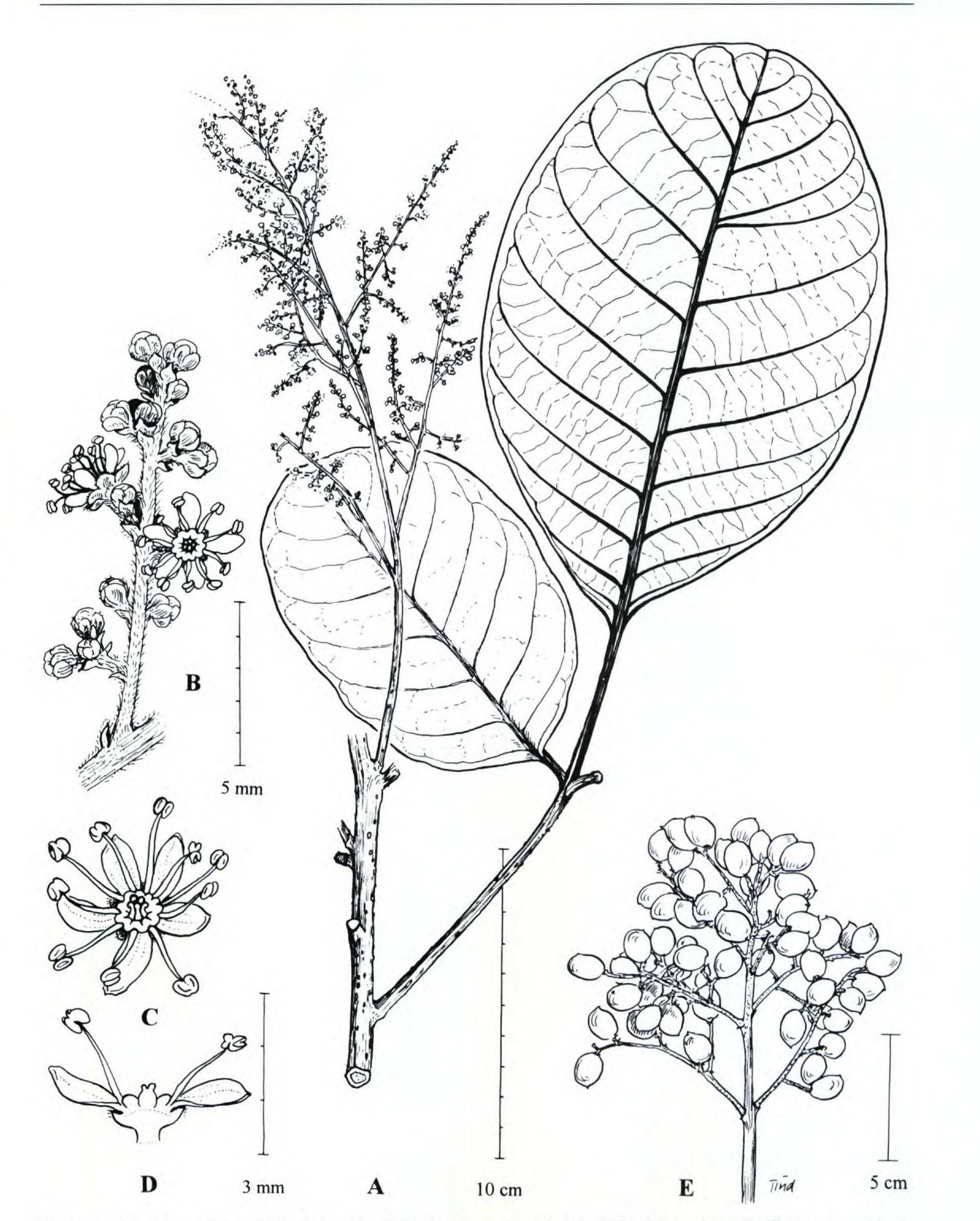


Figure 1. Tapirira rubrinervis Barfod. —A. Flowering branch. —B. Distal floral branch. —C. Flower at staminate anthesis. —D. Longitudinal section of C. —E. Infructescence. (A–D based on van der Werff et al. 11971; E based on Tipaz et al. 1339.)

(5-)8-12(-16) cm long, rachis to 15 cm long in the 7-foliolate leaves, both rachis and petiole glabrous, brown to ferrugineous, terete, with lens-shaped lenticels and fine longitudinal ridges; leaflets opposite, lateral petiolules 5–10 mm, terminal petiolule up to 8 cm long, glabrous, with dorsal furrow from attenuated leaf base; leaflets markedly different in size, the proximal ones (if present) smallest, $6-8 \times$ 4–5 cm, the terminal one largest up to 25 \times 14 cm, elliptic to obovate, chartaceous in dried condition, lustrous green, glabrous to minutely puberulent above, smooth matte green below, margin entire, subrevolute, apex rounded to obtuse (rarely with short acumen), base obtuse to rounded, oblique, shortly attenuate; venation brochidodrome pinnate, midvein prominulent often in groove above, very prominent and red beneath, secondary veins oppposite to alternate, prominulent above, prominent and red below, veinlets only clearly visible and somewhat impressed below. Inflorescence paniculate, arising in the axils of new leaves and grouped at a subterminal position, at anthesis usually superseded by juvenile leaves at the distal nodes, decreasing in size and degree of development toward the tip of the branch, the proximal lateral inflorescence being up to 40 cm long at anthesis, slightly curved, with peduncle to 14 cm long, all axes with ferrugineous pubescence varying in density, flowers typically borne in congested groups of three on short monopodial flower-bearing branches, each subtended by deltoid bracts ca. 0.5 mm long, floral bracts conspicuous, 0.3-0.5 mm long, often rounded apically, bracteoles inconspicuous to conspicuous on single lateral flowers toward the distal end of the flower-bearing branches, inserted immediately below the abscission zone. Flowers at staminate anthesis subsessile, rarely with pedicel up to 1 mm, sepals 5, $0.7-0.8 \times 0.7-$ 0.8 mm, rounded, with sparse pubescence on abaxial faces, marginally ciliate; petals 5, 1.5–1.8 \times 0.7-0.9 mm, ovate to elliptic, with visible venation in dried condition, reflexed; stamens 10, of unequal length up to 2 mm long, filaments slender, subulate, anthers 0.2-0.4 mm long, rounded; disc about 1.0 mm wide, 10-crenulate; rudimentary pistil 0.5-0.6 mm long, tomentose to pilose; ovary partly sunken in disc; styles 5, straight to slightly recurving; stigmas discoid. Flowers at late pistillate anthesis with developing pistil not available. Green fruits up to 10 mm long, some with wilted, 0.8-1.0-mm-long stamens at the base, apparently with aborted thecae. Mature fruits not seen.

specimen (*Tipaz et al. 1031*) has simple (unifoliolate) leaves, at least toward the tips of the inflorescence-bearing branches.

Phenology. The sexual expression within Tapirira needs to be studied in detail before any conclusions can be drawn. As interpreted here, T. rubrinervis is functionally dioecious like other species of Tapirira. However, most of the material examined is in bud and difficult to determine to sex. Fully open flowers with reflexed petals and unequal stamens, to 2 mm long, were only found in Quelal 647 and van der Werff et al. 11971. The anthers are past dehiscence, and a large proportion of the pollen grains has germinated. In other specimens, e.g., Aulestia 1257, Tipaz et al. 1339, and Mendez et al. 400, flowers have just opened. These are generally smaller than the fully opened flowers described above, with petals 1.2-1.3 mm long and stamens of equal length. The filaments are only 0.3-0.4 mm long and the anthers rounded. These are interpreted as functionally staminate flowers at early anthesis. Aberrant pollen grains were not observed, and the gynoecium was very similar to that of the long-staminate flowers, except for being a little smaller. It should be noted that in the material examined, I did not see pistil-

late flowers with developing, fertilized gynoecia.

Fruiting material of *Tapirira rubrinervis* was long past anthesis and gave few indications of the morphology of the assumed pistillate flower. Only the 0.8–1.0-mm-long, wilted stamens suggest that the flowers are different in proportions from their staminate homologues.

Based on this limited evidence, it cannot be excluded that *Taprira rubrinervis* has hermaphroditic flowers with sexual expression separated temporally but not spatially. This seems unlikely, since all other species of *Tapirira* are known as functionally dioecious or polygamodioecious.

Common name. "Sajo de arriba" (Esmeraldas), "Cuilde" (Carchi).

Use. Fibers are extracted from this species ac-

Leaf morphology. The leaves are few-foliolate, typically trifoliolate. From the material, it appears that trees with 5-foliolate leaves are common. One

cording to *Quelal et al. 267.* What they are used for is not specified, however. The fruits are eaten by several birds in the area.

Distribution. Tapirira rubrinervis is only known from the province of Carchi in Ecuador.

Paratypes. ECUADOR. Carchi: border area between Prov. Carchi and Esmeraldas, km 20 Lita–Alto Tambo road, 700 m, 23 June 1991 (fr), *H. van der Werff, B. Gray* & *G. Tipaz 11894* (AAU, MO, QCA, QCNE); Parroquia Tobar Donoso, Reserva indígena Awá, bosque primario noreste de la casa comunal, cerca de Río Botella, 78°24'W, 1°0'N, 650–1000 m, 19–28 June 1992 (fr), *G. Tipaz, J. Zuleta & N. Guanga 1339* (AAU, MO, QCA, QCNE); Parroquia Chical, Gualpi Medio, Reserva Indí-

Volume 9, Number 4 1999

Barfod Tapirira rubrinervis from Ecuador

gena Awá, Sendero a San Marcos al norte de la casa communal, 23-27 May 1992 (fl, bud and early anthesis), G. Tipaz, C. Quelal & G. Cantincuz 1031 (AAU, MO, QCA, QCNE); Chical, Reserva etnica Awá-Camumbí, 78°16'W, 0°53'N, 1700-1900 m, 20-29 July 1991 (fr), C. Quelal, C. Aulestia & F. Nastacuáz 267 (AAU, MO, QCA, QCNE); Comunidad de Gualpi Medio, 78°16'W, 1°1'N, 900 m, 21 May 1992 (fl, staminate anthesis), C. Quelal, G. Tipaz & J. Taicuz 647 (AAU, MO, QCA, QCNE); San Marcos de los Coaiqueres and surrounding perhumid forest on trail Chical-Tobar Donoso, 78°16'W, 1°6'N, 800 m, 8 Feb. 1985 (fl, bud). B. Øllgaard, J. Korning, K. Thomsen & T. Illum 57652 (AAU, MO, QCA); Parroquia Alto Tambo, la Unión, Reserva etnica Awá, 78°26'W, 00°52'N, 250 m 22 Mar. 1993 (fl, bud and early anthesis), C. Aulestia & M. Aulestia 1259 (AAU, MO, NY, QCA, QCNE); Parroquia el Chical, San Marcos, 78°14'W, 01°06'N, 900-1100 m, 20-30 Apr. 1993 (fl, bud and early anthesis), P. Méndez, J. Aulestia & J. Pai 400 (AAU, MO, NY, QCA, QCNE).

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